(December 17, 2004)

PROPOSED RULE 1156 PM_{10} EMISSION REDUCTIONS FROM CEMENT MANUFACTURING FACILITIES

(a) Purpose

The purpose of this rule is to reduce PM_{10} emissions from cement manufacturing facilities.

(b) Applicability

This rule applies to all operations and materials handling and transport at a cement manufacturing facility including but not limited to kiln and clinker cooler; storage; crushing, drying, screening, milling, conveying, bulk loading and unloading system, roadways, materials transport, and track-out.

(c) Definitions

(1) CEMENT MANUFACTURING FACILITY means any facility engaged in producing portland cement or associated products, as defined in the Standard Industrial Classification Manual as Industry No. 3141, Portland Cement Manufacturing.

(2) CHEMICAL DUST SUPPRESSANT means any non-toxic chemical stabilizer which is used as a treatment material to reduce fugitive dust emissions; and its use is not prohibited by any other applicable law and meets all applicable specifications required by any federal, state, or local water agency.

(3) CLINKER means a product from the kiln which is used as a feedstock to make cement.

(4) CLINKER COOLER means equipment into which clinker product leaving the kiln is placed to be cooled by air supplied by a forced draft or natural draft supply system

(5) CONVEYING SYSTEM means a device for transporting materials from one piece of equipment or location to another location within a facility. Conveying systems include but are not limited to the following: feeders, belt conveyors, bucket elevators and pneumatic systems.

(6) CONVEYING SYSTEM TRANSFER POINT means a point where any material including but not limited to feed material, fuel, clinker or

product, is transferred to or from a conveying system, or between separate parts of a conveying system

(7) ENCLOSED CONVEYOR is a conveyor where the surrounding and the top portion of the conveyor are totally enclosed by a removable cover to allow routine inspection and maintenance.

(8) ENCLOSED CRUSHING EQUIPMENT means crushing equipment where the surrounding and top portion of the equipment is enclosed, except for the area for trucks entering and leaving.

(9) ENCLOSED SCREENING EQUIPMENT means screening equipment where the top portion of the equipment is enclosed, except for the area where the materials are loaded to the screening equipment.

(10) ENCLOSED STORAGE is any completely roofed and walled structure or building surrounding an entire pile.

(11) EXISTING EQUIPMENT means any equipment, process or operation having an existing valid AQMD permit that was issued prior to (date of adoption).

(12) FACILITY means any source or group of sources or other air contaminant-emitting activities which are located on one or more contiguous properties within the AQMD, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control), or an outer continental shelf (OCS) source as determined in 40 CFR Section 55.2. Such above-described groups, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one facility. Sources or installations involved in crude oil and gas production in Southern California Coastal or OCS Waters and transport of such crude oil and gas in Southern California Coastal or OCS Waters shall be included in the same facility which is under the same ownership or use entitlement as the crude oil and gas production facility on-shore.

(13) FINISH MILL means a roll crusher, ball and tube mill or other size reduction equipment used to grind clinker to a fine powder. Gypsum and other materials may be added to and blended with clinker in a finish mill. The finish mill also includes the air separator associated with the finish mill.

(14) HAUL TRUCK means diesel heavy-duty truck that has a loading capacity equal to or greater than 50 tons.

(15) KILN means a device, including any associated preheater or precalciner devices that produce clinker by heating limestone and other materials for subsequent production of portland cement.

(16) OPEN PILE is any accumulation of materials which attains a height of three (3) feet or more or a total surface area of one hundred fifty (150) square feet or more.

(17) PAVED ROAD means a road improved by covering with concrete, asphaltic concrete, recycled asphalt, or asphalt.

(18) PM_{10} is particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.

(19) RAW MILL means a ball and tube mill, vertical roller mill or other size reduction equipment used to grind feed to the appropriate size. Moisture may be added or removed from the feed during the grinding operation. A raw mill may also include a raw material dryer and/or air separator.

(20) ROAD means any route with evidence of repeated prior travel by vehicles.

(21) SILT is any particulate with a particle size less than 75 micrometers in diameter as measured by a No. 200 sieve.

(22) STREET SWEEPER is a PM_{10} street sweeper approved pursuant to Rule 1186 – PM_{10} Emissions from Paved and Unpaved Roads & Livestock Operations.

(23) TRACKOUT ROAD is a road starting from the entrance or exit of the facility property and continuing away from the property which a truck trailer travels on and is used for material transport.

(d) Requirements

The operator shall comply with the following requirements by January 1, 2006 unless otherwise stated.

(1) Visible Emissions

(A) The operator of a facility shall not cause or allow the discharge into the atmosphere of visible emissions exceeding 10 percent opacity from any operation at the facility, except open piles, roadways and unpaved areas, using EPA Opacity Test Method 9.

(B) For open piles, roadways and other unpaved areas, the operator of a facility shall not cause or allow the discharge into the atmosphere

of visible emissions exceeding 20 percent opacity based on an average of 12 consecutive readings; or 50 percent opacity based on 5 individual consecutive readings using SCAQMD Opacity Test Method 9B.

(C) The operator of a facility shall not cause or allow any visible dust plume exceeding 100 feet in any direction from any operations at the facility.

(2) Loading, Unloading, and Transferring

(A) The operator shall conduct loading and unloading in an enclosed structure that is vented to SCAQMD permitted air pollution control equipment that meets the requirements in paragraph (d)(6) and is operated during loading and unloading activities. The enclosed structure shall have openings with overlapping flaps, sliding doors or other equally effective devices, as approved by the Executive Officer, which shall remain closed, except to allow trucks and railcars to enter and leave.

(B) The operator shall enclose all conveying system and transfer points. The enclosed structure shall be vented to permitted control equipment that meets the requirements in paragraph (d)(6) and is operated during all conveying activities; and shall have access doors to allow routine inspection and maintenance.

(C) The operator shall apply chemical dust suppressants during material loading, unloading, and transferring activities, and at conveying system transfer points to dampen and stabilize the materials transported and prevent visible dust emissions generated as necessary to meet the requirement in subparagraph (d)(1)(A).

(D) The operator shall install and maintain dust curtains, shrouds, and gaskets along the conveying system to contain dust, prevent spillage, and provide a dust-tight seal conveying system.

(E) The operator shall use appropriate equipment, including but not limited to stacker or chute, to minimize the height of materials fall into storage bin, silo, hopper or open stock pile and reduce the amount of dust generated to meet the requirements in paragraphs (d)(1) and (d)(6).

(F) In lieu of meeting the performance standard in paragraph (d)(6), the operator shall comply with the performance standard in Table 1.

(3) Crushing, Screening, Milling and Other Operations

(A) The operator shall enclose all operations including and not limited to crushing, screening, drying, blending, and milling. The enclosed structure shall be vented to permitted control equipment that meets the requirements in paragraph (d)(6) and is operated during these operations.

(B) The operator shall apply chemical dust suppressants during all operations to dampen and stabilize the materials processed and prevent visible emissions generated, as necessary, to meet the requirements in subparagraph (d)(1)(A).

(C) In lieu of meeting the performance standard in paragraph (d)(6), the operator shall comply with the equipment performance standard in Table 1.

(4) Kilns and Clinker Coolers

By December 31, 2006, the operator shall not operate the kilns and clinker coolers unless the operator complies with an outlet concentration of 0.005 grain/dcsf PM_{10}, or 0.05 lb PM_{10} per ton of clinker produced, or 99.95% overall control efficiency, measured with the approved source tests specified in subdivision (g).

(5) Material Storage

(A) The operator shall store raw materials and products in a silo, bin or hopper that is vented to an air pollution control device that meets the requirements in subparagraph (d)(1)(A) and paragraph (d)(6).

(B) By December 31, 2006, the operator shall enclose open pile of materials that do not meet the criteria in paragraph (h)(1). The enclosed storage area shall have openings covering with overlapping flaps, or sliding doors, or other equivalent devices(s) approved by the Executive Officer, which shall remain closed except to allow vehicles to enter or exit.

(C) For the remaining open piles, the operator shall comply with the following to meet the requirement of paragraph (d)(1):

(i) Apply chemical dust suppressants to stabilize the entire surface area of the pile, except for areas of the pile that are actively disturbed during loading and unloading activities; and re-apply chemical dust suppressants to stabilize disturbed areas of the piles at the end of each work shift; or

(ii) Install and maintain a three-sided barrier with at least two feet of visible freeboard from the top of the pile to provide wind sheltering, and maintain the open-sided of the pile stabilized.

(6) Air Pollution Control Device

(A) The operator shall install and maintain a baghouse system that meets the following performance standards measured with the approved source test in subdivision (g):

(i) an outlet concentration of 0.005 grain per dry standard cubic feet PM_{10}; or

(ii) a 99.95% collecting efficiency.

(B) The operator shall install and maintain a baghouse ventilation and hood system that meets:

(i) a capture efficiency of at least 99.5% measured with the approved source tests in subdivision (g); or

(ii) a minimum capture velocity requirement specified in the U.S. Industrial Ventilation Handbook.

(7) Internal Roadways and Areas

(A) Unpaved Roadways and Areas

(i) The operator shall apply chemical dust suppressants to stabilize the entire unpaved haul road surface; post signs at the two ends stating that haul trucks shall use these roads unless traveling to the maintenance areas; and enforce the speed limit of 15 miles per hour or less to comply with the opacity limits in paragraph (d)(1).

(ii) For other unpaved roadways and areas, the operator shall apply chemical dust suppressants to stabilize the surface, or

apply gravel pad containing 1-inch or larger washed gravel to a depth of six inches; and enforce a speed limit of 15 miles per hour or less to comply with the opacity limits in paragraph (d)(1).

(B) Paved Roads

The operator shall sweep all internal paved roads with a Rule 1186-certified-sweeper at least once a day, or more frequent if necessary, to comply with the opacity limits in paragraph (d)(1).

(8) Track-Out Roads

(A) The operator shall pave at least 0.25 mile of roads leading to the public roadways and ensure that all trucks use this road exclusively when leaving the facility to prevent track-out of dust to the public roadways and comply with the opacity limits in paragraph (d)(1).

(B) If necessary to comply with the opacity limits in paragraph (d)(1), the operator shall install a rumble grate, truck washer, and wheel washer; and ensure that all trucks go through the rumble grate, truck washer and wheel washer such that the entire circumference of each wheel or truck is cleaned before leaving the facility.

(C) To prevent material spillage from trucks to public roadways and fugitive dust emissions during transport:

(i) The operator and the truck driver shall ensure that cement trucks leaving the facility are fully covered with no accumulation on wheels or external surfaces of trucks;

(ii) For open-bed trucks of other materials, the operator and the truck driver shall ensure that the loaded materials are leveled and maintained with at least 6 inches of freeboard. The operator shall stabilize the load by using dust suppressants to comply with the opacity standard in paragraph (d)(1) unless the driver tarps or sufficiently covers the load before the trucks leaving the facility; and

(iii) The operator shall post signs at the exits of the facility to ensure compliance with the requirements in this subparagraph.

(D) The operator shall provide the "Fugitive Dust Advisory" flyers prepared by the District to any trucking company doing business with the facility at least once each calendar year.

(9) Facility Cleanup

The operator shall develop and implement rigorous housekeeping procedures that would require prompt removal of any pile of material spillage or carry-back, and application of chemical dust suppressant or other dust control methods to maintain the piles in a stabilized condition to ensure compliance with the opacity standards in paragraph (d)(1) at all times.

(e) Monitoring and Source Testing

(1) For the kilns, clinker coolers, raw mills and finish mills, the operator shall constinuously monitor the operating parameters including but not limited to flue gas flow rates and pressure drops across the baghouses, and record at the frequency specified in the Title V facility permit to ensure compliance with the limit in subdivision (d).

(2) For other equipment vented to baghouses, the operator shall monitor the flue gas flow rates and pressure drops at the frequency specified in the Title V facility permit to ensure compliance with the limit in subdivision (d).

(3) The operator shall not be required to comply with the monitoring or recording requirements during a malfunction period or a planned routine maintenance period of the monitoring or recording device provided that:

(A) The malfunction period or the planned routine maintenance period of the monitoring or recording device does not exceed ninety-six (96) consecutive hours;

(B) The monitoring or recording device has been either shutdown for a planned routine maintenance and the operator has provided a written notification to the Executive Officer at least two calendar weeks in advance; or by a mechanical or electrical failure or fire caused by circumstances beyond the operator's control. The operator shall submit a report to the Executive Officer within ninety-six (96) hours after the monitoring or recording device(s) returns to normal operation. Such written notification and report

shall include information as prescribed by the Executive Officer including at a minimum the cause of the shutdown, the time the monitoring or recording device(s) became non-operational, the time or estimated time the monitoring or recording device(s) returned to normal operation, the maintenance performed or corrective and preventive actions taken to prevent future non-operational conditions.

(4) For the kilns and clinker coolers, the operator shall conduct, at a minimum, an annual compliance source test in accordance with the test methods in subdivision (g) to demonstrate compliance with the emission limit(s) in subdivision (d). The first annual compliance source test in accordance with an approved source test protocol shall be conducted within ninety (90) calendar days after the compliance date specified in subdivision (d). The operator shall submit a source test protocol to the Executive Officer no later than sixty (60) calendar days prior to the proposed test date for the Executive Officer's approval for the first compliance source test.

(5) By January 1, 2006, the operator shall provide the Executive Officer a list of the top 20% PM10 process emitters vented to baghouses and the proposed testing schedule. The operator shall conduct compliance source tests and submit test results for these processes every 5 years, with at least two source tests conducted in any calendar year. If there are any changes to the list of equipment to be tested or the testing schedule, the operator shall notify the Executive Officer for approval 60 calendar days before the test date.

(6) During any annual compliance source test, the operator shall monitor and record, at a minimum, all operating data for the selected operating parameters of the control equipment and the process equipment and submit this data with the test report.

(7) The operator shall submit a complete test report for any compliance source test to the Executive Officer no later than sixty (60) calendar days of completion of the source test.

(f) Reporting and Recordkeeping

(1) The operator shall submit an annual emission report by March 1 of each year to the Executive Officer with all supporting documentation and

records to report the facility emissions from all process equipment, all vehicle traffic and open storage piles at the facility during the previous calendar year.

(2) The operator shall maintain all records and information required to demonstrate compliance in a manner approved by the Executive Officer for a period of at least five years and made available to the Executive Officer upon request.

(3) The operator of a facility shall keep, at a minimum, the following records to demonstrate compliance:

(A) Daily records of applying chemical dust suppressants, watering, sweeping and cleaning activities;

(B) Daily records of trucks entering and leaving the facility, and the materials imported or exported;

(C) Daily throughput records of all processes at the facility;

(D) Source test reports to demonstrate compliance with the emission standards in subdivision (d) including but not limited to PM10 emission rates, silt loadings, moisture content, and opacity readings; and

(E) Records of equipment start-up, shutdown, malfunction and repair.

(g) Source Test Methods and Calculation

(1) The operator shall use the following source test methods, as applicable, to determine the PM_{10} emission rates and collecting efficiency of the baghouses. All source test methods referenced below shall be the most recent version issued by the respective organization.

(A) SCAQMD Source Test Method 1 – *Velocity and Sample Traverse Points*;

(B) SCAQMD Source Test Method 2 – *Stack Gas Flow Rate*;

(C) SCAQMD Source Test Method 3 – *Stack Gas Density*;

(D) SCAQMD Source Test Method 4 – *Stack Gas Moisture*;

(E) SCAQMD Source Test Method 5.1, 5.2, and 5.3 - *Determination of Particulate Matter Emissions from Stationary Sources Using Heated Probe and Filter*;

(F) SCAQMD Source Test Method 5.1, 5.2, and 5.3 modified to use an in-stack PM_{10} cut cyclone and operated at a constant sampling

rate to sample PM_{10}, as specified in U.S. EPA Source Test Method 201A - *Determination of PM_{10} Emissions - Constant Sampling Rate Procedures*, 40 CFR Part 51, Appendix M. Analyses and calculations shall be performed according to SCAQMD Source Test Method 5.1, 5.2, and 5.3 including those for the determination of the condensable PM_{10} portion;

(G) SCAQMD Source Test Method 10.1 - *Carbon Monoxide, Carbon Dioxide and Oxygen*; and

(H) SCAQMD Source Test Method 100.1 - *Nitrogen Oxides, Sulfur Dioxide, Carbon Monoxide, and Oxygen.*

(I) EPA Source Test Method 5 may be used in lieu of SCAQMD Source Test Method 5.1, 5.2 and 5.3.

(2) The operator may conduct the source test for PM_{10} emissions using SCAQMD source test methods modified as in subparagraph (g)(1)(F), or may elect to conduct a source test for PM emissions using SCAQMD Source Test Method 5.1, 5.2, and 5.3 simultaneous with the source test for PM_{10} emissions to determine the ratio of PM_{10} to PM emissions. Subject to the approval of the Executive Officer following an evaluation of a source test report, the operator may conduct subsequent source tests for PM_{10} emissions using SCAQMD source test methods for PM and the above determined ratio of PM_{10} to PM.

(3) Source tests for PM and PM_{10} shall be taken and the average of the samples shall be used to determine the applicable emission rate in accordance with the following requirements:

(A) Simultaneous duplicate samples shall be obtained unless the operator demonstrates to the satisfaction of the Executive Officer that it is not physically feasible to do so, in which case the operator shall take sequential triplicate samples;

(B) All samples must have minimum sampling volume of 120 cubic feet or a minimum PM and PM_{10} catch of 6 milligrams per sample shall be collected;

(C) For duplicate samples, the source test shall be deemed invalid if the difference between the two samples is greater than 35% of the average of the two samples in the applicable units specified in

subdivision (d) and if the difference between the sample catches normalized to the average sampling volume is greater than 3.5 milligrams. If the source test is deemed invalid, the test shall be repeated; and

(D) For triplicate samples, upon approval of the Executive Officer or designee, if the operator can demonstrate that the process conditions, including but not limited to the throughput, quantity, type, and quality of all feedstock to the equipment process, and the emission control equipment conditions have not changed throughout the sequential test period, then the operator may apply the Dixon outlier test at the 95% significance level to check for and discard one outlier, and shall use the average of the two remaining samples to determine PM and PM_{10} emissions.

(4) The operator shall use EPA approved source test method to determine capture efficiency of the baghouse hood, ventilation and enclosure.

(5) The operator may use alternative or equivalent source test methods, as defined in U.S. EPA 40 CFR 60.2, if they are approved in writing by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency.

(6) The operator shall use a test lab approved under the SCAQMD Laboratory Approval Program for the source test methods cited in this subdivision if such approved lab exists. If there is no approved lab, then approval shall be granted by the Executive Officer on a case-by-case basis.

(7) The operator shall use ASTM Methods D-3302, D-4931, or equivalent methods approved by the Executive Officer, the California Air Resources Board and the U.S. EPA to determine material moisture content.

(8) The operator shall use Appendix C.1, Procedures for Sampling Surface/Bulk Dust Loading, and Appendix C.2, Procedures for Laboratory Analysis of Surface/Bulk Dust Loading Samples, as contained in Compilation of Air Pollutant Emission Factors (AP-42), as published by the U.S. EPA, or equivalent methods as approved by the Executive Officer, the California Air Resources Board and the U.S. EPA to determine the silt loading value.

(9) The operator shall use the methods specified in the SCAQMD Rule 403 Implementation Handbook to determine threshold friction velocity, and

stabilized surface, and EPA Opacity Test Method 9 or SCAQMD Opacity Test Method 9B to determine opacity.

(10) When more than one source test method or set of source test methods are specified for any testing, the application of these source test methods to a specific set of test conditions is subject to approval by the Executive Officer. In addition, a violation of any requirement of this rule established by any one of the specified source test methods or set of source test methods shall constitute a violation of the rule.

(h) Exemptions

(1) Materials that are demonstrated to meet any of the following criteria will be exempt from the requirement of total enclosure for storage pile set forth in subdivision (d).

(A) Materials with more than 10% moisture content; or

(B) Materials larger than ½ inch sieve.

(2) The operator is exempt from the use of chemical dust suppressants for internal unpaved roads if:

(A) the unpaved roads are located in the quarry area and used in the transportation of raw materials to other processing sites at the facility provided that the operator uses water in sufficient quantity and frequency to stabilize the road surface to meet the opacity standard in subparagraph (d)(1)(B) and notifies the Executive Officer in writing the location of such roadways; or

(B) the use of applicable chemical dust suppressants on that specific unpaved road violates the rules and/or regulations of the local Water Quality Control Board or other government agency provided the operator uses water in sufficient quantity and frequency to stabilize the road surface and the operator notifies the Executive Officer in writing 30 days prior to the use of water.

(3) Empty haul trucks are not required to use designated roads for haul trucks if they travel on unpaved roads complying with the requirements in clause (d)(7)(A)(ii).

(4) The operator shall be exempt from the requirement in subparagraph (d)(7)(A) where a road is used less than twice a day by a designated vehicle at a speed limit less than 15 miles per hour.

(5) The speed limit of 15 miles per hour or less in clause (d)(7)(A)(i) shall be exempt for haul trucks transferring raw materials used in the production of cement from quarry to primary crusher during normal working hours.

(i) Alternative Control Options

(1) In lieu of using chemical dust suppressants, the operator may submit an application for approval by the Executive Officer and the U.S. Environmental Protection Agency for achieving equivalent emission reductions through alternative control measures.

(2) In lieu of installing an enclosure and venting the feedstream of the primary crusher to a baghouse that meets the requirements in paragraph (d)(6), the operator may use alternative control measures after demonstrating equivalent control reductions and receiving approval from the Executive Officer.

Table 1
PM_{10} Emission Factor

Process	PM_{10} Emission Factor (lb/ton materials)
Primary limestone crushing vented to baghouse	0.0005
Secondary limestone crushing and screening vented to baghouse	0.0002
Limestone conveying vented to baghouse	0.00001
Raw mill vented to baghouse	0.006
Raw mill conveyor vented to baghouse	0.0016
Raw mill weight hopper vented to baghouse	0.0095
Raw mill air separator vented to baghouse	0.016
Finish mill vented to baghouse	0.004
Finish mill conveyor vented to baghouse	0.0012
Finish mill weight hopper vented to baghouse	0.0047
Finish mill air separator vented to baghouse	0.014
Raw material loading and unloading	0.001
Cement loading and unloading	0.0003